



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



20 JUN 2017

MEMORANDUM FOR 959 CSPS
ATTN: CAPT PANSY UBEROI

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Delayed Diagnosis of Iliac Vein Injury: A Severe Complication After Retropubic Mid-Urethral Mesh Sling Placement** presented at/published to **American Urology Association South Central Section, Naples, FL, 4-7 October 2017 (Poster)** in accordance with MDWI 41-108, has been approved and assigned local file #17267.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

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 - b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.
2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.
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4. Attach a copy of your abstract, paper, poster and other supporting documentation.
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9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. **Note:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.
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6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Delayed Diagnosis of Iliac Vein Injury: A Severe Complication After Retropubic Mid-Urethral Mesh Sling Placement			
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b. Forrest Jellison	O-4	959th	
c.			
d.			
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Delayed Diagnosis of Iliac Vein Injury: A Severe Complication After Retropubic Mid-Urethral Mesh Sling Placement

Pansy Uberoi MD, MPH, Forrest Jellison MD
SAUSHEC, Department of Urology, Fort Sam Houston, TX



ABSTRACT

Introduction: Tension-free synthetic mesh midurethral slings is the most common treatment for female stress urinary incontinence. Perioperative vascular injuries during placement of a retropubic mid-urethral sling are uncommon, but have been described.

The objective of this case report is to describe a complication of delayed presentation from vascular injury not previously documented in the literature.

Methods

Case Report

Results: A 69-year-old woman with stress urinary incontinence underwent placement of a retropubic mesh mid-urethral sling and subsequently developed persistent left abdominal, groin, and leg pain postoperatively.

The patient had no vascular symptoms related to her sling placement. Sling revision with partial removal of the suburethral portion was attempted at an outside hospital, but her symptoms failed to improve. After evaluation she underwent removal of the remaining suburethral portion and left arm of the retropubic sling. During her second revision surgery, she experienced catastrophic bleeding from the sling located in her left external iliac vein. The life-threatening injury required saphenous vein patch repair by Vascular Surgery.

Conclusion: This is the first description of a delayed diagnosis of vascular injury without urologic symptoms following retropubic mid-urethral mesh sling. This life-threatening complication should be considered and patients appropriately counseled prior to retropubic sling revision.

BACKGROUND

Retropubic mid-urethral slings (RMUS) are a standard treatment for the management of stress urinary incontinence. The recent American Urologic Association guideline for surgical management of female SUI described synthetic mid-urethral sling surgery as having similar efficacy and less morbidity than nonmesh slings¹.

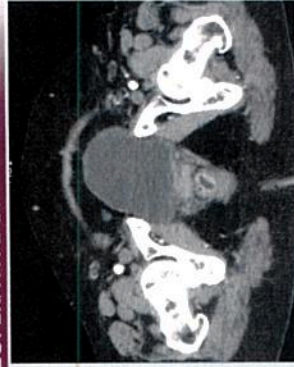
Common complications

Intraoperative hemorrhage has been described with major vessel injury found less than 0.7% percent of the time. Hematoma has been described in approximately 2% of patients².

CASE PRESENTATION

- A 69-year-old female underwent RPMUS placement
- Developed de-novo pain
 - Left groin
 - Left inner thigh
 - Left vaginal wall
- Left suburethral portion of sling was removed
- SUI worsened
- Pain did not improve
- Patient was referred to our center
- Urologic evaluation was negative
 - Negative UA
 - Negative cystourethroscopy
 - Negative urodynamic testing for obstruction
- Vascular evaluation was negative
 - No CT evidence of hematoma
 - Normal ABIs
- The patient opted for urethrolisis and sling removal

PREOPERATIVE CT



No evidence of external iliac vein injury on preoperative imaging. Disclaimer: The view(s) expressed herein are those of the author(s) and do not reflect the official policy or position of Brooke Army Medical Center, the U.S. Army Medical Department, the U.S. Army Office of the Surgeon General, the Department of the Army, the Department of the Air Force and Department of Defense or the U.S. Government.

INTRAOPERATIVE

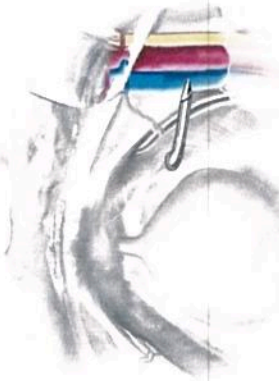


Illustration of trocar piercing the left external iliac vein

INTERVENTIONS

- Patient was taken to the OR for excision of sling
- Procedure was begun transvaginally
 - Urethrotomy was created and repaired with a martius flap
- Left retropubic arm of the sling was abnormally placed
 - 5cm superior to the pubic symphysis
 - 6cm lateral to the pubic symphysis
 - Traversed the obturator internus and ilioacocycgeus
- A mini-Gibson incision was created for adequate exposure
 - Sling was dissected free to the abdominal fascial
 - Careful attention was paid to not injure pelvic vessels and the sling was pulled superiorly and excised under direct visualization
- Following excision 200 mL of blood loss was experienced
 - Bleeding was controlled with direct pressure to the area
- The incision was extended to a full Gibson
 - The source of bleeding was identified with the mesh sling creating a venotomy in the left external iliac vein
 - Vascular Surgery examined the repair lumen diameter and assessed for thrombus

DISCUSSION

Vascular injury with RMUS placement is rare and most are identified intraoperatively as active extravasation of blood or hemodynamic instability.

This case represents delayed recognition of vascular injury.

In our literature search, one case of delayed diagnosis of external iliac vein injury was noted. However, the patient described in that case sustained several complications to include trocar placement through the bladder at index surgery and, on reoperation, she was noted to have bladder mesh penetration, scar tissue surrounding the obturator nerve, and intraluminal mesh of the contralateral external iliac vein³.

A comprehensive knowledge of the anatomy is necessary. The distance between the lateral edge of the trocar needle to the medial aspect of various vessels has been examined in cadavers.

An average of 4.9cm with a range of 2.9-6.2cm to the external iliac vessels was reported.

Distance to other vessels in terms of average and range were noted to be - obturator 3.2cm (1.6-4.3), superior epigastric 3.9cm (0.9-6.7), and inferior epigastric 3.9cm (1.9-6.6)⁴.

Our patient experienced a life-threatening complication during sling revision.

Given the possible proximity of sling arms to pelvic vessels, open/laparoscopic laparotomy should be considered by the operating surgeon when removing suprapubic sling arms to prevent vascular injury and to identify and such injuries if they occur.

An understanding of these delayed complications is important to the practicing urologist or gynecologist when evaluating vague symptoms in the post-operative period following RMUS placement and intraoperatively.

REFERENCES

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4. Muir T, Tulikangas P, Paraiso M, and Walters M. The Relationship of Tension-Free Vaginal Tape Insertion and the Vascular Anatomy. Obstetrics and Gynecology - TVT and Vascular Anatomy Vol 101, No 5, Part 1, May 2003.

**DELAYED DIAGNOSIS OF ILIAC VEIN INJURY: A SEVERE
COMPLICATION AFTER RETROPUBIC MID-URETHRAL MESH
SLING PLACEMENT**

Pansy Uberoi MD, MPH; Forrest Jellison MD, San Antonio Uniformed
Services Health Education Consortium

Objectives: Tension-free synthetic mesh midurethral slings is the most common treatment for female stress urinary incontinence. Perioperative vascular injuries during placement of a retropubic mid-urethral sling are uncommon, but have been described.

The objective of this case report is to describe a complication of delayed presentation from vascular injury not previously documented in the literature.

Methods: Case Report

Results: A 69 year old woman with stress urinary incontinence underwent placement of a retropubic mesh mid-urethral sling and subsequently developed persistent left abdominal, groin, and leg pain postoperatively. The patient had no vascular symptoms related to her sling placement. Sling revision with partial removal of the suburethral portion was attempted at an outside hospital, but her symptoms failed to improve.

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Conclusion: This is the first description of a delayed diagnosis of vascular injury without urologic symptoms following retropubic mid-urethral mesh sling. This life-threatening complication should be considered and patients appropriately counseled prior retropubic sling revision.

Financial Disclosure: None

Disclaimer: The views expressed are those of Drs Pansy Uberoi and Forrest Jellison and do not reflect the official views or policy of the Department of Defense or its Components.